

REMARKS

The Office Action mailed October 5, 2005, has been received and the Examiner's comments carefully reviewed. Independent claims 77, 86, 89, 100, 104, and 114 have been amended as supported by, for example, Fig. 6 of the application. Claims 120, 122, and 123 have been editorially revised. New dependent claims 126-129 that depend from independent claim 77 have been added. Applicants submit that, of the newly added claims, all of the claims 126-129 are readable upon Species c drawn to figure 6, as recited in the Restriction Requirement mailed November 17, 2004. No new matter has been added. Favorable reconsideration of this application is requested in view of the following remarks.

Support in Specification for New Claims

New claim 126 is supported by, for example, Fig. 6 of the application. New claim 127 is supported by, for example, Fig. 6 of the application and the description on page 5, paragraph [0027], page 7, paragraphs [0034] and [0037], and page 12, paragraph [0059] of the current specification. New claim 128 is supported by, for example, Fig. 6 of the application and the description on page 11, paragraphs [0052] and [0053], and page 12, paragraph [0059] of the current specification. New claim 129 is supported by, for example Fig. 6 and the description on page 12, paragraph [0058] and page 14, paragraph [0066] of the current specification.

Drawings

In the Office Action, the amended drawing filed on 7/20/05 has been objected to under 35 U.S.C. 132(a) for introducing new matter into the disclosure. The Office Action states that separator 90 on replacement figure 6 is new matter and was not previously disclosed in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Applicants respectfully traverse this objection.

Applicants respectfully submit that a "separator" is disclosed in paragraph [0059] on page 12 of the Specification, wherein it is stated in the Specification, "Additionally, the core element

may include any combination of conductors, insulation, shielding and separators as previously discussed."

Furthermore, a "separator" is a well-known term of art in the cabling industry. A separator, which may also be known in the cabling art as a spacer, etc., is commonly recognized and used in the cabling industry to separate twisted pairs of conductors from each other. According to the MPEP, Section 2163.07 (I), the mere inclusion of dictionary or art recognized definitions known at the time of filing an application would not be considered new matter. One in the art would readily know the function of a separator when used in cabling systems with twisted pairs of conductors within the cable. Applicants have enclosed herewith this Response, for the Examiner's review, a number of references in the cabling industry (U.S. patent Nos. 5,969,295; 5,789,711; 6,150,612; 6,248,954; and 6,566,605) showing some of the commonly-recognized configurations and use of separators in separating twisted pairs of conductors from each other.

Fig. 6 was simply amended to show one example embodiment of a "separator" as described in the Specification and as commonly known in the cabling art and also to assign a reference numeral to such a "separator". By showing a sample separator and assigning a reference number to the separator in the drawings, Applicants simply incorporated an art-recognized definition of a separator into the application.

Applicants respectfully submit that separator 90 was disclosed in such a manner as to reasonably convey to one skilled in the relevant art that the Applicants, at the time the application was filed, had possession of the claimed invention and no new matter has been added by showing the separator 90 in Fig. 6. Thus, Applicants respectfully request withdrawal of the objection to the drawings.

In addition, Fig. 7 has been returned back from the Examiner with the Office Action as not having been approved. However, there is no reasons indicated in the Office Action as to why Fig. 7 has not been approved. The Applicants respectfully request the Examiner to provide reasons for the disapproval of Fig. 7 and to also provide recommendations, if any, to correct the same.

Specification

In the Office Action, the amendment filed on 7/20/05 has been objected to under 35 U.S.C. 132(a) for introducing new matter into the disclosure. The Office Action states that at page 12 of the amended paragraph [0059], the phrase "separated by a separator 90", discloses new matter because the original disclosure did not describe that the separator separates the twisted pairs. Applicants respectfully traverse this objection.

As discussed above in the remarks with respect to the Drawings, a "separator" is a well-known term of art in the cabling industry, and, according to the MPEP, Section 2163.07 (I), the mere inclusion of dictionary or art recognized definitions known at the time of filing an application would not be considered new matter. Furthermore, according to MPEP, Section 2163.07(a), by disclosing in a patent application a device that inherently performs a function, a patent application necessarily discloses that function. Separators which may also be known in the cabling art as spacers, etc. are commonly used in the cabling industry to separate twisted pairs of conductors from each other. One in the art would readily know the function of a separator when used in cabling systems that have twisted pairs of conductors within the cable.

By describing that the twisted pairs are "separated by a separator 90" in the Specification, Applicants simply included an art-recognized definition and made an inherent function of a separator explicit in the application. Thus, Applicants respectfully submit that the phrase "separated by a separator 90" is fully supported by the original disclosure and does not constitute new matter.

Furthermore, in the Office Action, the added phrase is indicated by the Examiner to be confusing. Applicants respectfully submit that in the specification, on page 5, paragraph [0025] and on page 11, paragraph [0053], it is stated that, "Twisted pairs, in turn, may be twisted together to form a multi-fiber cable." When separated by a separator, the twisted pairs may be twisted together along with the separator, wherein the separator would also have a twisted configuration, as known in the art.

Claim Objections

In the Office Action, claims 120, 122, and 123 have been objected to because in claim 120, line 2, in claim 122, line 1, and in claim 123, line 1, the phrase "of less than" has a grammatical error. Examiner has suggested "less than" instead to correct the grammatical error. Claims 120, 122, and 123 have been editorially revised in accordance with the Examiner's suggestion. No new matter has been added. Withdrawal of the objection to claims 120, 122, and 123 is respectfully requested.

Claim Rejections - 35 USC § 112

In the Office Action, claims 89-103, 114, 117, and 119 have been rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The Office Action states that the claims contain subject matter (a separator positioned within the jacket for separating the twisted pairs of data transmission conductors) which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention. Applicants respectfully traverse this rejection.

As discussed above in the remarks regarding the Drawings and the Specification, Applicants respectfully submit that "a separator positioned within the jacket" is fully supported by the original Specification (paragraph [0059]) and a separator is a well-known term of art in the cabling industry. One of ordinary skill in the art would easily recognize a "separator" as described in the Specification and know the function thereof.

Thus in view of the above, the phrase "a separator positioned within the jacket" was described in the Specification in such a manner as to reasonably convey to one skilled in the relevant art that the Applicants, at the time the application was filed, had possession of the claimed invention and does not constitute new matter. Withdrawal of the 35 U.S.C. 112, first paragraph rejection is respectfully requested.

Claims 89-103, 114, 117, and 119 have also been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject

matter which applicant regards as the invention. The Examiner has requested clarification as to how a separator positioned within the jacket for separating the twisted pairs of conductors separate twisted pairs that are supposed to be twisted around each other.

Applicants respectfully submit that only independent claim 104 used to include the language, "the four twisted pairs of data transmission conductors being twisted around each other to define a core". Claim 104 has been amended to remove any confusion and now recites that "the four or fewer twisted pairs of data transmission conductors defining a core".

Withdrawal of the 35 U.S.C. 112, second paragraph, rejection is respectfully requested.

Claim Rejections - 35 USC § 102

In the Office Action, claims 77-80, 83, 86-88, 104, and 111 have been rejected under 35 U.S.C. 102(b) as being anticipated by Jachimowicz et al. (3894172). Applicants respectfully traverse this rejection.

Claim 77

Independent claim 77, as amended, recites, among other things, a cable having a plurality of twisted pairs of conductors and a jacket defining a central passage in which the twisted pairs of conductors are located. The central passage includes air that occupies the volume between the plurality of twisted pairs of conductors. The jacket includes legs that project inwardly, the legs defining channels thereinbetween. The channels include air which is in fluid communication with the air in the central passage that occupies the volume between the plurality of twisted pairs of conductors. Each of the channels have two opposing sides, a side interconnecting the two opposing sides, wherein the side interconnecting the two opposing sides forms discretely identifiable corners with the opposing sides, and an open side that faces inwardly toward the central axis

Unlike the invention of claim 77, Jachimowicz fails to disclose or suggest cable channels that have an open side that faces inwardly toward the central axis, two opposing sides, and a side interconnecting the two opposing sides, wherein the side interconnecting the two opposing sides

forms discretely identifiable corners with the opposing sides. The cable channels in Jachimowicz have one continuously curved side and do not include three closed sides that form discretely identifiable corners with each other.

Moreover, there is no suggestion or motivation, either in Jachimowicz or in the knowledge generally available to one of ordinary skill in the art, to modify the cross-sectional shape of the channels in Jachimowicz. As discussed in the MPEP, Section 2143.01, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine reference teachings.

In addressing the rejection over claim 77, Applicants would like to refer to the rejections in the Office Action over claims 93 and 115-119. In claims 93 and 115-119, the channels are recited to generally include rectangular cross-sectional shapes. In the rejections over claims 93 and 115-119, the Examiner takes the position that the Applicants have presented no explanation why the particular configuration of channels is significant or is anything more than one of numerous configurations of proportions. The Examiner cites *In Re Dailey*, 149 USPQ 47 (CCPA 1976) for the proposition that a change in shape or configuration is generally recognized as being within the level of ordinary skill in the art. The Applicants respectfully disagree with this position.

Firstly, in the Applicants' cable, the cross-sectional shape of the channels in the invention of claim 77 is significant. A cross-sectional area formed from a continuous curve can be further increased by adding discretely identifiable sides and corners to the curve. As discussed in paragraphs [0029]-[0036] on pages 6-7 and paragraphs [0045]-[0048] on pages 9-10 of the specification, the cross-sectional shape of the channels in Applicants' invention has a direct correlation with the electrical properties, fire-prevention properties, and the manufacturing costs of the cable. The channels are shaped to increase the cross-sectional area, thus, the air-holding volume of the channels, in order to increase the effective overall insulation, to decrease the dielectric constant (DK) of the conductors within the jacket, to decrease the material cost of manufacturing of the jacket, and to reduce the fuel load of the cable jacket.

Unlike the invention of claim 77, Jachimowicz does not contemplate changing the electrical or other properties of the cable by varying the cross-sectional shape of the channels 20. There is, in fact, absolutely no discussion relating to the presence of the channels 20 in Jachimowicz. The channels 20 in the polyethylene foam extruded over the bundle of twisted pairs in Jachimowicz are formed simply from the extrusion process and are not created for the purpose of affecting the properties of the cable. Thus, one looking at the disclosure of Jachimowicz would have had no reason to contemplate changing the cross-sectional shape of the channels and to make the curved channels of Jachimowicz deeper by creating discretely identifiable corners in the channels.

Secondly, regarding *In re Dailey*, 149 USPQ 47 (CCPA 1976), according to the holding of this case and according to the MPEP, Section 2144.04 (IV) (B), this case stands for the proposition that a particular configuration is a matter of choice which a person of ordinary skill in the art would have found obvious only absent persuasive evidence that the particular configuration claimed was significant.

Since the shape of the channels in the invention of claim 77 is significant in increasing the cross-sectional area of the channels to improve the electrical properties, the fire prevention properties, and the manufacturing costs of the cable, it would not simply be a matter of choice to one of ordinary skill in the art to modify the channels of Jachimowicz to arrive at the invention of claim 77. Therefore, in view of the holding of *In Dailey*, claim 77 is patentable over Jachimowicz.

Claims 78-80, 83, and new claims 126-129 depend from claim 77 and are patentable for at least the same reasons specified with respect to claim 77.

Claim 86

Independent claim 86, as amended, recites, among other things, a cable having a plurality of twisted pairs of conductors and a jacket within which the twisted pairs of conductors are located. The jacket defines interior air channels. The channels define legs thereinbetween that project inwardly toward the central axis of the jacket. The legs are attached to the jacket at outer ends and have free, unattached inner ends. Each channel has two opposing sides, a side

interconnecting the two opposing sides, wherein the side interconnecting the two opposing sides forms discretely identifiable corners with the opposing sides, and an open side that faces inwardly toward the central axis of the jacket.

As discussed above with respect to claim 77, Jachimowicz fails to disclose a cable with channels that have an open side that faces inwardly toward the central axis, two opposing sides, and a side interconnecting the two opposing sides, wherein the side interconnecting the two opposing sides forms discretely identifiable corners with the opposing sides. Moreover, as also discussed, there is no suggestion or motivation, either in Jachimowicz or in the knowledge generally available to one of ordinary skill in the art, to modify the cross-sectional shape of the channels in Jachimowicz. Thus, claim 86 is patentable over Jachimowicz.

Claims depend 87 and 88 depend from claim 86 and are patentable for at least the same reasons specified with respect to claim 86.

Claim 104

Independent claim 104, as amended, recites, among other things, a cable having four or fewer twisted pairs of conductors defining a core and a jacket that defines an interior air passage with a central region including air and a peripheral region including air. The core is positioned within and is exposed to the air in the central region. The peripheral region includes a plurality of channels with air that are circumferentially spaced relative to one another about the core. The air in the channels is in fluid communication with the air in the central region to which the core is exposed. A separator is positioned within the jacket.

Unlike the invention of claim 104, Jachimowicz fails to disclose or suggest a cable having four or fewer twisted pairs of conductors defining a core. Jachimowicz discloses twelve twisted pairs of conductors (pairs 10, 12, 14, 18...) assembled in a bundle that is held together by applying a tape made of foamed thermoplastic supported by a film such as Mylar or polypropylene, or other material.

Furthermore, unlike the invention of claim 104, Jachimowics fails to disclose or teach a separator positioned within the jacket. In the Office Action, the metallic shield 24 that is placed

over the foamed material 20 is interpreted by the Examiner to be the separator recited in claim 104. Applicants respectfully disagree with this characterization of the Jachimowicz reference. As discussed previously, a separator has a very specific meaning in the cabling art. The term "separator" is commonly used in the cabling industry to refer to a structure that separates adjacently placed twisted pairs of conductors from each other within a unit holding the twisted pairs of conductors. As indicated above, Applicants have enclosed herewith this Response, for the Examiner's review, a number of references in the cabling industry (U.S. patent Nos. 5,969,295; 5,789,711; 6,150,612; 6,248,954; and 6,566,605) showing some of the commonly-recognized configurations and use of separators in separating twisted pairs of conductors from each other. In contrast, the metal shield 24 in Jachimowicz is not a separator as commonly defined in the cabling art. The metal shield 24 is placed over the foamed material 20 and is preferably a longitudinally applied folded aluminum or copper tape held around the unit 16 by a plastic insulating tape. Please see column 2, lines 61-63 of Jachimowicz. Metal shield 24 is an electrical shield for each of the units 16 and is not a separator for separating one twisted pair from another one within each of the units 16.

Moreover, there is no motivation or suggestion in Jachimowicz to add a separator as generally known in the art to the cable in Jachimowicz. Jachimowicz simply discloses several identical shielded units 16 that are cabled together in a single cable. There is no discussion of a separator for separating any of the twisted pairs from each other. Jachimowicz, in fact, teaches away from using a separator to separate the twisted pairs of conductors from each other. For example, it is stated in column 3, lines 51-57 of Jachimowicz, "The pairs 10, 12, 14 and 18 are locked in reference to each other by means of the foamed jacket 20 or foamed tape, previously described. The interstices between the pairs in the unit 16 are preferably left with only air within them. It is unnecessary to use filling compound in the units 16 because these units are protected from contact with moisture in the cable 30." And it is stated in column 3, lines 66-68 and column 4, lines 1-3 of Jachimowicz, "Since the units 16 themselves are not filled, the cable of this invention has the advantages of a filled cable in the event of a break in the shield 34, but still has air around the pairs in the separate units 16 with resulting lower capacitance and smaller dimension of the cable."

Thus, in view of the above, claim 104 is patentable over Jachimowicz.

Claim 111 depends from claim 104 and is patentable for at least the same reasons specified with respect to claim 104.

Therefore, the Examiner is respectfully requested to withdraw the above rejection.

Claim Rejections - 35 USC § 103

In the Office Action, claims 81, 82, 84, 85, 105-110, 112, 113, 115, 116, 118, 120, 122, 123, and 125 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Jachimowicz et al. Applicants respectfully traverse this rejection.

Claims 81, 82, 84, 85, 115, 120, 122, 123, and 125 depend from and further modify independent claim 77 and are patentable over Jachimowicz for at least the same reasons specified above with respect to claim 77.

Claim 116 depends from and further modifies independent claim 86 and is patentable over Jachimowicz for at least the same reasons specified above with respect to claim 86.

Claims 105-110, 112, 113, 118 depend from and further modify independent claim 104 and are patentable over Jachimowicz for at least the same reasons specified above with respect to claim 104.

Thus, in view of the above, withdrawal of the rejection over claims 81, 82, 84, 85, 105-110, 112, 113, 115, 116, 118, 120, 122, 123, and 125 is respectfully requested.

In the Office Action, claims 89-103, 114, 117, and 119 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Jachimowicz et al. in view of Boucino et al. (US005969295A). Applicants respectfully traverse this rejection.

Claim 89

Independent claim 89, as amended, recites, among other things, a cable having four or fewer twisted pairs of conductors and a jacket within which the twisted pairs of conductors are

located. The jacket defines interior channels that are circumferentially spaced relative to one another about the twisted pairs of conductors. The channels define legs thereinbetween that project inwardly toward the central axis of the jacket. The legs are attached to the jacket at outer ends and have free, unattached inner ends. A separator is positioned within the jacket.

As discussed above with respect to claim 104, Jachimowicz fails to disclose or suggest a cable having four or fewer twisted pairs of conductors and a separator positioned within the jacket. Moreover, as discussed above, since Jachimowicz teaches away from a separator for separating the twisted pairs of conductors, one in the art would have had no motivation to combine the teachings of Boucino with those of Jachimowicz.

Thus, in view of the above, the claim 89 is patentable over Jachimowicz et al. in view of Boucino et al.

Claims 90-99 depend from claim 89 and are patentable for at least the same reasons specified with respect to claim 89.

Claim 100

Independent claim 100, as amended, recites, among other things, a cable having four or fewer twisted pairs of conductors and a jacket that defines an interior passage with a central region including air and a peripheral region. The twisted pairs of conductors are positioned within the central region with the air therein occupying a volume between the twisted pairs of conductors. The peripheral region includes a plurality of channels that are circumferentially spaced relative to one another about the central region. The channels include air, the air in the channels being in fluid communication with the air in the volume of the central region between the twisted pairs of conductors. A separator is positioned within the jacket.

As discussed above with respect to claims 89 and 104, Jachimowicz fails to disclose or suggest a cable having four or fewer twisted pairs of conductors and a separator positioned within the jacket. And, since Jachimowicz teaches away from a separator for separating the twisted pairs of conductors, one in the art would have had no motivation to combine the teachings of Boucino with those of Jachimowicz.

Thus, claim 100 is patentable over Jachimowicz et al. in view of Boucino et al.

Claims 101-103 and 117 depend from claim 100 and are patentable for at least the same reasons specified with respect to claim 100.

Claim 114

Independent claim 114, as amended, recites, among other things, a cable having four or fewer twisted pairs of conductors and a jacket that defines a single passage with a central region in fluid communication with a peripheral region. The twisted pairs of data conductors are positioned within the central region. The jacket includes an inner portion and an outer portion with a plurality of projections projecting inwardly from the outer portion of the jacket. The projections have inner unattached ends that define an outer boundary of the central region of the passage. A separator is positioned within the jacket.

As discussed above with respect to claims 89, 100, and 104, Jachimowicz fails to disclose or suggest a cable having four or fewer twisted pairs of conductors and a separator positioned within the jacket. And, since Jachimowicz teaches away from a separator for separating the twisted pairs of conductors, one in the art would have had no motivation to combine the teachings of Boucino with those of Jachimowicz.

Thus, claim 114 is patentable over Jachimowicz et al. in view of Boucino et al.

Claim 119 depends from claim 114 and is patentable for at least the same reasons specified with respect to claim 114.

Therefore, the Examiner is respectfully requested to withdraw the above rejection.

It is respectfully submitted that each of the presently pending claims (77-129) is in condition for allowance and notification to that effect is requested. Although certain arguments regarding patentability are set forth herein, there may be other arguments and reasons why the claimed invention is patentably distinct. Applicants reserve the right to raise these arguments in the future. The Examiner is invited to contact Applicants' representative at the below-listed

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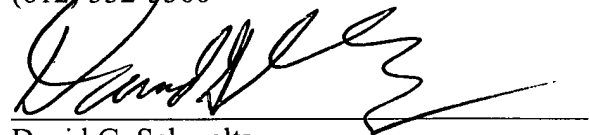
telephone number if it is believed that the prosecution of this application may be assisted thereby.

Respectfully submitted,

MERCHANT & GOULD P.C.
P.O. Box 2903
Minneapolis, Minnesota 55402-0903
(612) 332-5300

Date: _____

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David G. Schmaltz
Reg. No. 39,828
DSchmaltz/AS/dc